

## National Conservation Council Guidance Notes on the Legal Handling of Stingrays

### Introduction

A key purpose of the National Conservation Law, and a function of the National Conservation Council, is to promote and secure biological diversity and the sustainable use of natural resources in the Cayman Islands. Cayman's Southern Stingrays, particularly those found at Stingray City and the Sandbar in Grand Cayman's North Sound, are indisputably invaluable natural resources for the Cayman Islands.

Under the National Conservation Law, stingrays (specifically southern stingrays, *Dasyatis Americana*, *Hypanus americanus*) are a Part 1 listed species (under the Subclass Elasmobranchii, with all other sharks and rays found in Cayman waters). This means that they are protected from take at all times. Under the National Conservation Law, 2013, “‘take’ means to collect, hunt, kill, destroy, damage, injure, disturb, harass, harm, wound, capture, molest or impede a live specimen in any way or to attempt to do so, and includes incidental taking”. For the avoidance of doubt, an individual holding a live stingray, or attempting to do so, would count as “take” under the National Conservation Law, 2013.

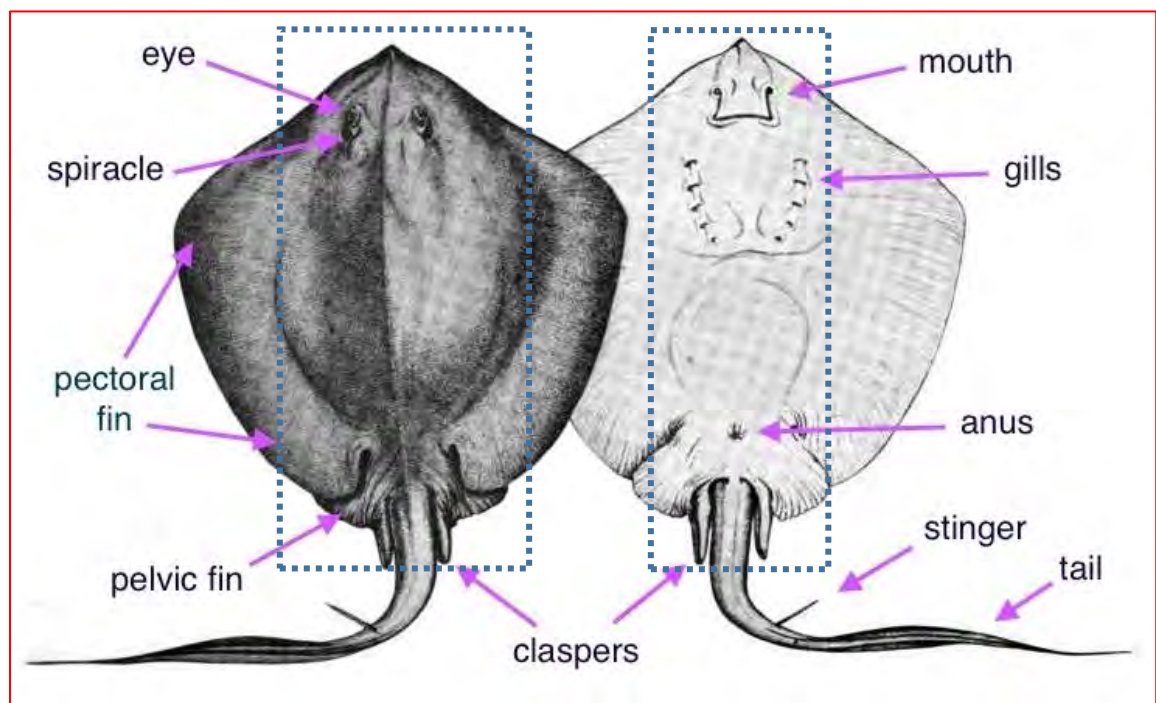
Stingray City and the Sandbar are Protected Areas under the National Conservation Law by virtue of being a marine park (specifically and hereafter referred to as Wildlife Interaction Zones, or WIZs). In these WIZs it is illegal to “remove any stingray or other marine life from the water”<sup>1</sup>. The WIZs were set up to manage human interaction with wildlife within the zones, particularly the stingrays, interactions not allowed anywhere else in the Cayman waters. To allow this interaction to continue in a manner that protects the health of the stingrays and promotes the sustainable use of these natural resources of the Cayman Islands, the following Guidance Notes are issued. These Guidance Notes were prepared for the National Conservation Council by the Department of Environment who consulted with experts in elasmobranch physiology during the drafting process. And with reference to the “Elasmobranch Husbandry Manual”, 2004, by Smith, Warmolts, Thoney and Hueter (Eds.).

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<sup>1</sup> Marine Conservation (Marine Parks) Regulations (2007 Revision) section 7(2)(b)

## Handling Restrictions

- 1) Any elevation of the stingray which causes the spiracles, eyes, mouth or gills to be held out of the water will be considered “take”.
- 2) Holding the stingray in such a way that their wing (flap or pectoral fin) slaps against the body of a person, e.g., a back-slap, will be considered “take”.
- 3) Bending any part of the stingray in any direction, whether bending their back or bending/curling their wings (flaps or pectoral fins), claspers, etc., will be considered “take”.
- 4) Gripping the stingray’s fins to immobilize them (impede their movement) will be considered “take”.
- 5) Physical interaction with the midline of the stingray, identified by the blue hatched boxes illustrated in the picture below will be considered “take”.



<sup>2</sup>

diagram of a stingray, highlighting ‘no touch’ areas

Best Practice: Apply sunscreen well in advance of handling or interacting with any marine life, including stingrays. Certain ingredients in sunscreens may be toxic or otherwise stressful to marine life, including stingrays, even in very low concentrations.

<sup>2</sup> Wikimedia Commons [https://commons.wikimedia.org/wiki/File:Dasyatis\\_say\\_njsm\\_\(annotated\).jpg](https://commons.wikimedia.org/wiki/File:Dasyatis_say_njsm_(annotated).jpg)

## Allowed Handling

Department of Environment Conservation Officers will apply their discretion and not consider the following activities as “take” under the law:

- A) Positioning stingrays flat in the water, supported by a person, e.g., arms bent at the elbows and extended in front of the person’s body, as long as the stingray is not gripped (see restriction No. 3 above) or bent in any significant way (see restriction No. 2 above).
  - i) Best Practice: Stingray should be positioned so that its nose is towards the person supporting the stingray, this leaves the tail relatively clear for safety while allowing others to view the stingray or touch its wings (pectoral fins) safely. The handler can also easily move with the stingray cradled in this manner, extending the period of interaction without gripping the stingray in such a way that it cannot end the interaction if it desires.
- B) Physical interaction such as petting, touching, or rubbing the upper or lower (underside) areas of the wings (pectoral fins) of the stingray is allowable. This includes by other individuals when a stingray is positioned on another person’s arms (A above or similar), or as the stingray passes by. The midline of the stingray should not be interacted with (see restriction No. 4 above).
  - i) The slight angling of the stingray in the water to allow just the nose (area of the stingray before but not including the mouth, spiracles or eyes) to rise above or out of the plane of the water for physical interaction with a person, is allowed.
- C) Observing stingrays swimming, or hunting for food buried for them, is allowable and encouraged as it reduces direct human/stingray interaction. Such a “hands off” approach might be especially suitable for interactions at the Stingray City WIZ.

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## Illustrations of Allowable Interactions



Cradling a stingray – Good Handling – visitors could pet the stingray from the side



Kissing a stingray – Stingray cradled, eyes and spiracles submerged

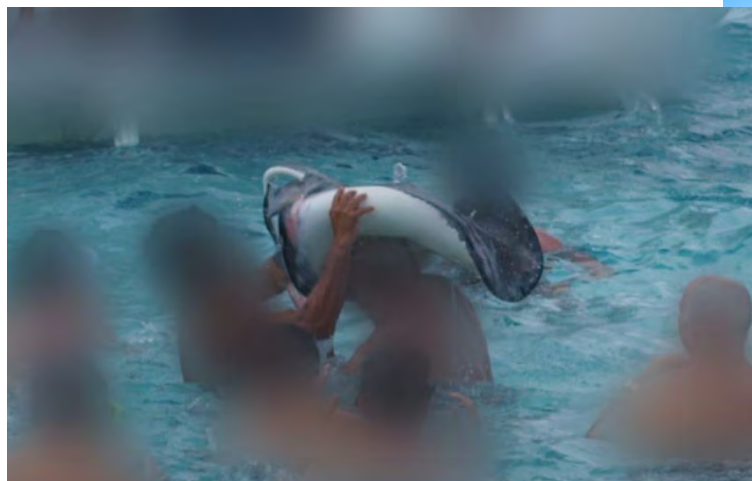
‘Guests’ calmly cradling the stingray



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Illustrations of Prohibited Interactions



Stingray Back Slap –  
No longer allowed



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2019-02-27 NCC GM WP-12  
Stingray Handling Guidelines  
Draft v7  
11 February 2019

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Draft v7

11 February 2019



### Conclusion

Anyone seeing activity they feel is potentially illegal is encouraged to report this to the Department of Environment [DoE@gov.ky](mailto:DoE@gov.ky). By including a picture of the observed action, date, location and information about the suspected offender (such as the name of the charter boat the person being complained about worked on), Department of Environment Conservation Officers may be able to provide further guidance to the individual or business on proper handling of stingrays, place the individual or business under observation for the prosecution of future actions, or even warn an individual for intended prosecution if the information provided is substantial enough. If you are providing a photograph, please ensure the image is clear (and time and location data is embedded in the picture's metadata if possible). All information regarding suspected marine offences provided to the DoE will be kept strictly confidential.

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## Background Information

### National Conservation Council

### Guidance Notes on the Legal Handling of Stingrays

Elasmobranchs, such as stingrays, are susceptible to stress and can even perish in captivity due to stress. Although the WIZ stingrays are not captive, the repeated handling they experience, their modified diet, social structure and diurnal activity is comparable in some ways to the stresses experienced by captive elasmobranchs. Additionally, elasmobranchs are susceptible to internal injury due to the nature of their skeletal system. Any interaction that involves bending the animal, lifting the animal out of the water or which otherwise causes stress to the animal is a cause for concern.

Many of the WIZ stingrays are pregnant females, bringing particular health concerns. Lifting the spiracle or gills & mouth of the stingray out of the water can impede their breathing, which reduces oxygen transport to the uterus and to the gestating pups, increasing the stress on pregnant females. Pregnant female stingrays are also most likely to be pushing themselves forward for food and, therefore, are the most prone to being stressed from over-handling. Sadly, termination of pregnancy is a common response to stress in animals.

Physical interaction with the stingray's eyes or spiracles, as well as its dorsal body cavity and underbelly, anus and claspers (in males), could be harmful or stressful to the stingray. Physical interaction with the stingray's dorsal ridge, tail with stinger and mouth could be harmful or stressful to the human handler. The spiracles and gills are very sensitive in rays and easily damaged if handled. The gill slits can become infected which then affects the gills and the health of the animal. Internal organs can be damaged by even light pressure applied to the wrong place. This risk is heightened in pregnant females and the WIZ stingray populations contain a high percentage of pregnant females year-round.

Rays breathe using spiracles and gills. Water goes in through spiracles, and out through gills. Having the spiracles or the gills out of water – or covered by hands or arms through inappropriate handling - impairs the stingray's ability to breathe and therefore their respiratory and circulatory systems. In order for elasmobranchs to carry oxygen to their tissues, they need to transfer oxygen across their gills and they are not able to do this when they are out of the water. Impaired oxygen transfer leads to impaired metabolic respiration and systemic circulation. The resulting anaerobic respiration/metabolism can also cause a build-up of lactic acid which is a toxic metabolite.

Stingrays with lesions and open sores are regularly observed at the Sandbar. Elasmobranch skin is more delicate than people often assume and can easily be damaged. For example, a stingray that is grasped at the same spots repeatedly over time, may suffer from increased abrasions in those areas. When their skin is damaged, stingrays can be susceptible to secondary bacterial and fungal infections. Toxic chemicals used in sunscreen can injure the skin or make existing skin injuries worse, leaving the rays susceptible to

10 February 2019

secondary infections. There is also the risk of transferring diseases from elasmobranchs to humans, or vice versa, and this risk would be increased by any open lesions resulting from improper handling of the stingrays.

“Unlike teleosts (i.e., bony fishes), sharks and rays have a skeleton made of cartilage and lack ribs. This characteristic means that the internal organs and musculature of elasmobranchs are poorly protected and susceptible to damage without horizontal support (Clark, 1963; Gruber and Keyes, 1981; Murru, 1990).” (Elasmobranch Husbandry Manual- Mark Smith, et. Al. 2004). Therefore, they should always be held in a horizontal position with their weight supported by the buoyancy of the water, not lifted out of the water and especially not lifted at an angle.

While their cartilaginous skeleton makes stingrays seem flexible, they should never be bent. Cartilage is not as solid as bone, but it is not meant to bend like rubber. When rays are bent from head to tail this can cause harm to their backs or internal organs and holding (rolling) up the wings can put an enormous strain on both the muscles and the spine of the ray. The repeated bending that WIZ stingrays may be subjected to could cause chronic skeletal damage and also internal damage. This damage may not be something that is seen immediately or even noticed by the average person. For example, elasmobranchs have a very large liver that takes up a huge portion of the body cavity. The liver is extremely important for several reasons but in particular the low density oils that are stored in it increase the buoyancy of the animal (helps them be neutrally buoyant). Damage to the liver due to severe torsion and bending is a possibility.

It is important to remember that the stingrays at Stingray City and especially the Sandbar can interact with hundreds of persons on a daily basis. While certain handling activities may seem benign or at worst to do only minimal damage to these large and tough animals it is important to remember that the cumulative effects of mishandling over days, weeks, months and years can have a significant effect on the animals. A single incident of mishandling may not result in immediately apparent harm, but the same rays are handled several times daily and impacts such as from bending, lifting while pregnant, sunscreen, and scratches, can be cumulative and long-term. This is why stingray wing-slaps are no longer allowed – possible cumulative impact of sunscreen, gripping or bending the stingray’s body, and abrasions to the soft underside of the stingray from people’s clothing, etc.

Potential penalties for non-compliance with these directives (or other rules under the National Conservation Law) include suspension or revocation of a commercial operators WIZ licence. For either commercial operators, their staff, or private individuals non-compliance with these directives, or other illegal activity, can result in legal prosecution under the National Conservation Law. Such prosecution can carry a penalty, at the discretion of the presiding judge, of a fine up to \$500,000, 4 years in jail, and other penalties (vessel confiscation, etc.).

## National Conservation Council Guidance Notes on Handling Starfish

### Introduction

One of the purpose of the National Conservation Law, and a function of the National Conservation Council, is to promote and secure biological diversity and the sustainable use of natural resources in the Cayman Islands. The starfish of the Cayman Islands, particularly those at Ivory Key (Starfish Point) in the North Sound of Grand Cayman, are natural tourism and recreational resources to the Cayman Islands.

While starfish (and some other Echinodermata) are known for their ability to withstand rough handling, including the loss of limbs and temporary removal from seawater this handling – as with any animal – would disturb and harass, if not outright damage, injure, harm, or wound the molested animal. Repeated or extreme mishandling can kill individual animals. Chronic mishandling can also result in animal death, or damage which is not obvious to external observation. It can also make animals leave an area, such as Starfish Point. Easily interpreted guidance notes – do not remove starfish from the water, handle them gently while they are in the water – are in the best interest of the animals and the general public who wish to continue to view and interact with these animals sustainably and responsibly.

Under the National Conservation Law starfish (such as the West Indian or Cushion Starfish, (*Oreaster reticulatus*) are a Part 1 listed species (under Echinodermata, with all of the other Starfish, Sea-dumplings, Urchins, Sea Eggs, Sand Dollars found in Cayman waters). This means that they are protected from take at all times. Under the National Conservation Law, 2013, “‘take’ means to collect, hunt, kill, destroy, damage, injure, disturb, harass, harm, wound, capture, molest or impede a live specimen in any way or to attempt to do so, and includes incidental taking”. For the avoidance of doubt the mere act of picking up or holding a live starfish by a person would count as “take” under the National Conservation Law, 2013, even if the animal was immediately released. (Holding or attempting to hold the live starfish would impede the animal, regardless of their normally slow speed. The act of picking up the starfish would be a form of capture. Picking up and holding the starfish would disturb and harass and potentially harm the animal, even if there were no obvious outward signs of this disturbance, harassment and harm, either physically or in the animal’s actions and reactions.)

Recognising the public interest for education, commerce, and enjoyment in interacting with starfish but in a manner that is relatively respectful of the protected animals and promotes the sustainable use of these natural resources of the Cayman Islands, the following Guidance Notes are issued.

## Handling Restrictions

- 1) Any elevation of any part of the starfish (or any other Echinodermata) out of or above the water, will be considered “take” and prosecuted as such.
- 2) Bending any part of the starfish (or any other Echinodermata) in any direction, including manipulating their arms, will be considered “take” and prosecuted as such.
- 3) Holding the starfish (or any other Echinodermata) by the feet, or inserting anything into any part of or opening into the animal, will be considered “take” and prosecuted as such.
- 4) Physical interaction with the starfish (or any other Echinodermata) in such a manner as to break off a piece of the starfish (or any other Echinodermata), i.e., wounding, e.g., to cause a foot or arm to become separated from the main body, even if only partially.
- 5) Physical interaction with the starfish (or any other Echinodermata) in such a manner as to break or pierce the skin or outer integument of the starfish (or any other Echinodermata), i.e., damage.

Best Practice: Apply sunscreen well in advance of handling or interacting with any marine life, including starfish (or any other Echinodermata). Certain ingredients in sunscreens may be toxic or otherwise stressful to marine life, even in very low concentrations.

## Allowed Handling

Department of Environment Conservation Officers will apply their discretion and not consider as “take” under the Law the following activities:

- A) Positioning the starfish (or any other Echinodermata) flat in the water, supported by a person, e.g., in a person’s hands, including inverting the starfish.
- B) Gentle physical interaction such as petting, touching, or rubbing the starfish (or any other Echinodermata), including its feet.

## Conclusion

Anyone seeing activity which they feel is potentially illegal is encouraged to report this to the Department of Environment [DoE@gov.ky](mailto:DoE@gov.ky). By including a picture of the observed action, date and location and information on who the suspected offender was, Department of Environment Conservation Officers may be able to provide further guidance to the individual or business on proper handling of starfish (or any other Echinodermata), place the individual or business under observation for the prosecution of future actions, or even warn an individual for intended prosecution if the information provided is substantial enough (clear photograph with location and time data embedded).